

What is claimed is:

1. A method of coating a vehicle wheel to increase wear and corrosion resistance of the vehicle wheel, comprising the steps of:
providing a vehicle wheel; and
applying a wear and corrosion resistant coating onto a surface of the vehicle wheel.
2. The method according to claim 1, wherein the coating is applied to a tire bead seat area of the vehicle wheel.
3. The method according to claim 1, wherein the coating is applied to a tire bead retaining flange of the vehicle wheel.
4. The method according to claim 1, wherein the vehicle wheel is made of forged aluminum.
5. The method according to claim 1, wherein the vehicle wheel is made of cast aluminum.
6. The method according to claim 1, wherein the coating comprises tungsten carbide.

7. The method according to claim 6, wherein the coating further comprises one of cobalt and chrome.
8. The method according to claim 1, wherein the coating comprises a nickel-based superalloy.
9. The method according to claim 1, wherein the coating comprises aluminum and silicon carbide.
10. The method according to claim 1, wherein the coating comprises stainless steel.
11. The method according to claim 1, wherein the coating comprises nickel, chromium, iron, silicon, and boron, and optionally including chromium carbide or tungsten carbide.
12. The method according to claim 1, wherein the coating is applied by a method selected from the group consisting of cold spraying, thermal spraying, and triboelectric discharge kinetic spraying.

13. The method according to claim 1, wherein the coating is applied by a method selected from the group consisting of high velocity combustion, low velocity combustion, plasma spray, and twin arc spraying.

14. The method according to claim 1, wherein the coating is applied by a method for improving wear conditions at temperatures up to about 1200° F.

15. The method according to claim 1, further comprising the step of mechanically buffing the coating.

16. The method according to claim 1, wherein the coating is applied to a thickness between about 0.004 – 0.01 inch.

17. The method of according to claim 1, further comprising the step of preparing the surface of the vehicle wheel by mechanically abrading the surface of the vehicle wheel.

18. The method according to claim 17, wherein the step of mechanically abrading the surface of the vehicle wheel comprises one of mechanical roughening, knurling, and abrasive grit blasting of the surface of the vehicle wheel.

19. The method of according to claim 1, further comprising the step of preparing the surface of the vehicle wheel by chemical etching of the surface of the vehicle wheel.

20. The method according to claim 1, further comprising the step of preparing the surface of the vehicle wheel by high pressure water blasting of the surface of the vehicle wheel.

21. A coated wheel made according to the method of claim 1, wherein the coating comprises tungsten chrome carbide, optionally including cobalt, or a nickel-based superalloy and wherein the wheel is coated in at least a bead seat area of the vehicle wheel.

22. A vehicle wheel having a wear and corrosion resistant coating applied to the surface of the vehicle wheel at least on a bead seat area of the vehicle wheel, the coating having a thickness of between about 0.004-0.01 inch on the surface.

23. The vehicle wheel of claim 22, wherein the coating comprises tungsten carbide.

24. The vehicle wheel of claim 23, wherein the coating further comprises one of cobalt and chrome.

25. The vehicle wheel of claim 22, wherein the coating comprises a nickel-based superalloy.

26. The vehicle wheel of claim 22, wherein the coating is applied to a bead seat retaining flange.

27. A method of coating an existing vehicle wheel to improve wear and corrosion resistance of the vehicle wheel, comprising the steps of:

providing a used vehicle wheel;

preparing a surface of the used vehicle wheel; and

applying a wear and corrosion coating onto the surface of the used vehicle wheel, the coating applied at least to a bead seat area of the vehicle wheel.

28. The method of claim 27, wherein the coating is applied to a tire bead retaining flange of the vehicle wheel.

29. The method according to claim 27, wherein the vehicle wheel is made of forged aluminum.

30. The method according to claim 27, wherein the vehicle wheel is made of cast aluminum.

31. The method according to claim 27, wherein the coating comprises tungsten carbide.
32. The method according to claim 27, wherein the coating further comprises one of cobalt and chrome.
33. The method according to claim 27, wherein the coating comprises a nickel-based superalloy.
34. The method according to claim 27, wherein the coating comprises aluminum and silicon carbide.
35. The method according to claim 27, wherein the coating comprises stainless steel.
36. The method according to claim 27, wherein the coating comprises nickel, chromium, iron, silicon, and boron, and optionally including chromium carbide or tungsten carbide.

37. The method according to claim 27, wherein the coating is applied by a method selected from the group consisting of cold spraying, thermal spraying, and triboelectric discharge kinetic spraying.

38. The method according to claim 27, wherein the coating is applied by a method selected from the group consisting of high velocity combustion, low velocity combustion, plasma spray and twin arc spraying.

39. The method according to claim 27, wherein the coating is applied to a thickness between about 0.004 – 0.01 inch.

40. The method of according to claim 27, further comprising the step of preparing the surface of the vehicle wheel by mechanically abrading the surface of the vehicle wheel.

41. The method according to claim 27, wherein the step of mechanically abrading the surface of the vehicle wheel comprises one of mechanical roughening, knurling, and abrasive grit blasting of the surface of the vehicle wheel.

42. The method according to claim 27, further comprising the step of preparing the surface of the vehicle wheel by chemical etching of the surface of the vehicle wheel.

43. The method according to claim 27, further comprising the step of preparing the surface of the vehicle wheel by high pressure water blasting of the surface of the vehicle wheel.

44. A coated wheel made according to the method of claim 1, wherein the coating comprises tungsten chrome carbide, optionally including cobalt, or a nickel-based superalloy and wherein the wheel is coated in at least a bead seat retaining flange of the vehicle wheel.